

**IN THE UNITED STATES DISTRICT COURT FOR THE  
NORTHERN DISTRICT OF OKLAHOMA**

---

JOHN J. EVANS, as Personal Representative of  
the Estate of Dorothy Lorene Evans, Deceased,

Plaintiffs,

-vs-

GENERAL ELECTRIC COMPANY and DAEWOO  
ELECTRONICS AMERICA, INC., and BEST BUY  
STORES, L.P. and BBC PROPERTY CO.,

Defendants

CASE NO. 11-CV-802-JED--FHM

---

**PLAINTIFF'S RESPONSE TO DEFENDANT'S MOTION TO  
EXCLUDE THE TESTIMONY OF DR. MARCUS DURHAM**

---

Respectfully submitted,

TAYLOR, RYAN, MINTON, VAN DALSEM  
& WILLIAMS, P.C.  
ROBERT TAYLOR - OBA #8879  
NEIL D. VAN DALSEM - OBA #16326  
ROBERT SCOTT WILLIAMS - OBA #19974  
1437 South Boulder, Suite 850  
Tulsa, OK 74119  
(918) 749-5566

ATTORNEYS FOR PLAINTIFFS

April 23, 2014

## TABLE OF CONTENTS

THE RELEVANT FACTS. ....	1
ARGUMENTS AND AUTHORITIES. ....	4
A.    The Court's Role Is To Exclude Opinions That Constitute Junk Science, Not To Weigh The Evidence Or Usurp The Jury's Role As Fact-Finder... ..	4
B.    Dr. Durham's Opinions Are Reliable Because He Is Experienced In Identifying And Determining The Causes Of Electrical Failures... ..	5
C.    Dr. Durham Followed The Recognized Procedures Of NFPA 921 To Evaluate The Evidence And Reliably Concludes The Microwave Experienced A High-Resistance Fault That Caused A Fire.. ..	6
D.    NFPA 921 Does Not Require Dr. Durham To Conduct A Lab Experiment For This Particular Case Or To Recreate The Conditions That Caused The Microwave To Catch Fire... ..	9
E.    Dr. Durham's Opinions Are Founded Upon Sufficient Facts And Data And Are Not The Result Of "Expectation Bias." .....	14
1.    G.E.'s Allegation That Dr. Durham Did Not Consider Enough Evidence Provides An Unlikely Basis To Completely Exclude His Testimony... ..	14
2.    Dr. Durham Conducted A Thorough Investigation That Led Him To The Reasonable Conclusion That The Fire Started Inside The Microwave. ....	16
3.    G.E.'s Specific Criticisms Of Dr. Durham's Investigation Demonstrate That G.E. Misunderstands The Evidence And Dr. Durham's Opinions... ..	17
a.    Dr. Durham Properly Excluded The Vent Hood As A Cause Of The Fire... ..	17
b.    Dr. Durham Did Not Ignore "Other Likely Sources In The Den," And He Reliably Excluded Those Ignition Sources Based On Evidence That The Fire Started In The Kitchen Inside The Microwave... ..	18
c.    Dr. Durham Properly Excluded House Wiring As The Cause Of The Fire... ..	19
F.    Dr. Durham's Opinions Are Not Based On "Rank Speculation" Or "Assumptions." .....	20
G.    Dr. Durham's Alleged "Incorrect Assumptions" And Inadequacies Have No Relevance To The Reliability Of His Opinions... ..	22

CONCLUSION. ....	24
CERTIFICATE OF MAILING. ....	25

# TABLE OF AUTHORITIES

## CASES

<i>Adams v. J. Meyers Builders, Inc.</i> , 671 F.Supp.2d 262, 273 (D. N.H., 2009).....	12
<i>Argonaut Ins. Co. v. Samsung Heavy Industries Co. Ltd.</i> , 929 F.Supp.2d 159, 166 -167 (N.D. N.Y., 2013).....	12, 19
<i>Chickasha Cotton Oil Co. v. Hancock</i> , 1957 OK 12, 306 P.2d 330.....	20
<i>Citizens Ins. Co. of the Midwest v. LG Electronics USA, Inc.</i> , 2012 WL 3294962, 8 (S.D. Ind. 2012).....	12
<i>Daubert v. Merrell Dow Pharmaceuticals, Inc.</i> , 43 F.3d 1311, 1317 (9th Cir. 1995).....	2, 4, 6, 7, 10, 11, 12, 13, 14, 15, 19, 22, 24
<i>Dutsch v. Sea Ray Boats, Inc.</i> , 1992 OK 155, 845 P.2d 187, 189-90.....	20
<i>Fireman's Fund Ins. Co. v. Canon U.S.A., Inc.</i> , 394 F.3d 1054, 1057–58 (8th Cir. 2005).....	7
<i>Heller v. Shaw</i> , 167 F.3d 146, 152–53 (3d Cir. 1999).....	5
<i>Hickerson v. Pride Mobility Products Corp</i> , 470 F.3d 1252 (8th Cir. 2006).....	12
<i>Hoang v. Funai Corp.</i> , 652 F.Supp.2d 564, 567, 570 (M.D.Pa. 2009).....	7
<i>Johnson v. Samsung Electronics America, Inc.</i> , 277 F.R.D. 161 (E.D. La. 2011).....	15
<i>Kentucky Farm Bureau Mutual Insurance Company v. General Electric Company</i> , 2011 WL 665747 at * 3 (W.D. Ky. 2011).....	13
<i>Kirkland v. General Motors Corp.</i> , 1974 OK 52, 521 P.2d 1353, 1363.....	20
<i>Kizzia v. Electrolux North America</i> , Case No. CIV-10-248-RAW (E.D. Okla. January 11, 2012).....	2
<i>McCoy v. Whirlpool Corp.</i> , 379 F.Supp.2d 1187, 1197 (D. Kan. 2005).....	11

<i>Nelson v. Whirlpool Corp.</i> , 2011 WL 1827451 (S.D. Ala. 2011).	5-6
<i>Occidental Fire &amp; Cas. of North Carolina v. Intermatic Inc.</i> , 2013 WL 4458769, 2 (D. Nev., 2013).	16
<i>Orth v. Emerson Elec. Co., White-Rodgers Div.</i> , 980 F.2d 632, 636 (10th Cir. 1992).	20
<i>Peerless Ins. Co. v. Marley Engineered Products, LLC</i> , 2008 WL 7440158 at *6 (E.D. N.Y.).	19
<i>Pipitone v. Biomatrix, Inc.</i> , 288 F.3d 239, 250 (5th Cir. 2002)F.3d 239, 250 (5...	4
<i>Royal Ins. Co. of Am. v. Joseph Daniel Constr., Inc.</i> , 208 F.Supp.2d 423, 426 (S.D.N.Y. 2002).	7
<i>Russell v. Whirlpool Corp.</i> , 702 F.3d 450, 454 (8th Cir.2012).	6
<i>Shuck v. CNH Am., LLC</i> , 498 F.3d 868, 875 n. 3 (8th Cir. 2007).	12
<i>Tigert v. Admiral Corp.</i> , 1979 OK CIV APP 41, 612 P.2d 1381.	21
<i>Travelers Indem. Co. v. Indus. Paper &amp; Packaging Corp.</i> , 2006 WL 1788967, 4 -5 (E.D. Tenn. 2006).	13
<i>Travelers Prop. &amp; Cas. Corp. v. GE</i> , 150 F.Supp.2d 360, 366 (D.Conn. 2001).	7
<i>Tunnell v. Ford Motor Co.</i> , 330 F.Supp.2d 707, 725 (W.D.Va. 2004).	7
<i>U.S. v. Acman</i> , 748 F.Supp.2d 531, 536 (E.D. Va. 2010).	7
<i>United States v. Crabbe</i> , 556 F.Supp.2d 1217, 1222 (D. Colo. 2008).	6, 15
<i>United States v. Dysart</i> , 705 F.2d 1247, 1252 (10th Cir. 1983).	5
<i>United States v. Lauder</i> , 409 F.3d 1254, 1264 n. 5 (10th Cir. 2005).	15
<i>Westfield Ins. Co. v. J.C. Penney Corp.</i> , 466 F.Supp.2d 1086, 1094 (W.D. Wis.2006).	12

<i>White Elec. Services, Inc. v. Franke Food Service Systems, Inc.</i> , 2010 WL 3824117, 2 (N.D. Okla., 2010).	2
<i>Windham v. Circuit City Stores, Inc.</i> , 420 F.Supp.2d 1206 (D. Kan. 2006).	10
<i>Workman v. AB Electrolux Corp.</i> , 2005 WL 1896246, 10 (D. Kan. 2005).	11
<i>Zuchowicz v. United States</i> , 140 F.3d 381, 387 (2d Cir. 1998).	11

#### **OTHER AUTHORITIES**

Fed.R.Evid. 702.	5, 6, 7, 14, 15, 19
OUJI 12.1.	20

### **THE RELEVANT FACTS**

On December 17, 2010, a fire destroyed Dorothy Evans's house. Ms. Evans was 94 years old and blind. She burned to death. Her homeowners insurer, Farmers Insurance Company, contacted an experienced fire origin and cause investigator, Randall Overton. Farmers asked Mr. Overton to try to determine the cause of the fire. Mr. Overton inspected the scene of the fire. His initial impression was that burn patterns indicated the fire started in the kitchen, near where a G.E. microwave oven had been located. That continues to be Mr. Overton's opinion, and he will be called as an expert witness by the Plaintiff at trial. G.E. has not even attempted a *Daubert* challenge to Mr. Overton's conclusion that the fire started in the kitchen where the microwave was located.

Mr. Overton thought that the source of the fire could be electrical, so he contacted Dr. Marcus Durham. It would have been impossible to find a better qualified person than Dr. Durham to evaluate the cause of the fire. Dr. Durham's life work is the study of the causes of fires, with a particular emphasis on the causes of electrical fires and related product failures. (*See generally* Dr. Durham's resume, attached as Exhibit "1"). He has a B.S. in electrical engineering, a M.E. in engineering systems, and a Ph.D. in electrical engineering. He taught electrical engineering at the University of Tulsa for 20 years. He remains a professor emeritus at that institution.

Dr. Durham also is a certified fire and explosive investigator through the National Association of Fire Investigators (NAFI). He has received numerous honors, awards, and professional recognitions for his work. Dr. Durham has published numerous papers, books, and standards concerning the field of electrical engineering and electrical product failures.

Dr. Durham has been in the business of analyzing product failures for 45 years. (Durham Depo., Exhibit "2", p. 7). Even while he taught at the University of Tulsa, he owned and maintained a private lab, where he has conducted many experiments regarding electrical failures in products and their causes. Dr. Durham has investigated so many fires that he lost count long ago. He has previously investigated dozens of fires that were caused by electrical defects in microwave ovens.

Dr. Durham's profession calls upon him to testify in court. He has been recognized as an expert and provided trial testimony regarding relating to electrical product failures or accidents over

20 times. In most of those cases, he provided testimony about the causes of fires in a structure, appliance, or machine. In each such instance Dr. Durham employed the same basic methodologies that gave rise to his opinions in this case. He has been recognized as an expert regarding electrical issues in federal courts in this state. *See, e.g., White Elec. Services, Inc. v. Franke Food Service Systems, Inc.*, 2010 WL 3824117, 2 (N.D. Okla., 2010)("Durham has credentials and expertise to offer opinions in this case that may assist the trier of fact and that these opinions meet the standards of *Daubert v. Merrell Dow Pharmacy, Inc.* . . . ."); Order of Judge Ronald White in *Kizzia v. Electrolux North America*, Case No. CIV-10-248-RAW (E.D. Okla. January 11, 2012) at page 11 (attached as Exhibit "3"). No court has ever excluded Dr. Durham's testimony under *Daubert*.

Dr. Durham became involved on December 21, 2010, long before this lawsuit existed, at the request of Ms. Evans' homeowners insurer. (Durham Depo., Exhibit "2", p. 39). He was not looking to blame the fire on a microwave or any other particular cause. The evidence led him to that conclusion.

Dr. Durham began his analysis by considering the physical location where the fire started. For that, he primarily relied upon Randall Overton, an experienced origin and cause investigator. Mr. Overton reported to Dr. Durham that the fire originated in the north end of the house in the kitchen. (*Id.*, p. 40). Dr. Durham is himself qualified to evaluate burn pattern evidence. Dr. Durham carefully inspected the entire house. Dr. Durham took a total of 287 photos during his December 21, 2010 inspection. He did not reach the microwave until he took his 145<sup>th</sup> photograph.

Although Dr. Durham did not individually take every step that would normally be involved in an analysis of the origin of the fire and relied in part on Mr. Overton, Dr. Durham did independently consider the burn pattern evidence. He would not have blindly agreed with Mr. Overton's analysis of the area of origin. Dr. Durham also concluded the fire appeared to have started in the kitchen.

Dr. Durham followed the scientific method that is outlined by NFPA 921. (*Id.*, pp. 144-145). When Dr. Durham examined the microwave, he found oxidation patterns indicating an *internal* heat

source. (*Id.*, p. 78). He also identified an area that had experienced intense local heat near the magnetron area of the microwave that appeared to be from internal burning. (*Id.*, p. 82). More importantly, there was evidence of electrical arcing on a particular wire where it passed over a metal lip between the internal cavity and the control section of the microwave.

After his initial investigation, on December 21, 2010, Dr. Durham went to the fire scene two more times. He took the microwave to his lab – where it remains. He engaged in a joint inspection of the microwave with experts selected by G.E. and the microwave's manufacturer.

Dr. Durham concludes that the fire was caused by an electrical fault inside of the microwave that happened because a wire was installed incorrectly. He concludes that the fault occurred because the subject wire was installed in a manner that placed stress on the wire. (*Id.*, pp. 157-158). The stress on the wire caused a tight contact with the piece of metal that it was draped over. (*Id.*, pp. 160-161). Over time, the stress on the wire resulted in a loss of and damage to the insulation. (*Id.*, pp. 162-163). Dr. Durham has previously performed many experiments regarding damage to insulation. He knows from those experiments that the more weight and stress that is placed on a wire, the faster the insulation will break down in the presence of vibrations. (Durham Depo., Exhibit "2", p. 163). Dr. Durham can tell that there was weight on the wire because of the location where the wire failed and faulted. (*Id.*, p. 163).

When the insulation developed damage, that resulted in an escape of electricity through the insulation that caused an additional escape of electricity and resulting heat which further compromised the insulation. Ultimately, the insulation failed and caused a high-resistance fault that was sufficient to ignite gasses that were coming out of the wire insulation due to the same heat that was the ignition source. Electricity escaped from the wire to the adjacent metal surface, which involved heating, arcing and shorting. (*Id.*, pp. 169-170). The wire heated all the way from the electrical supply point up to the point where it failed. (*Id.*, pp. 170-171).

In fact, Dr. Durham can determine that, for a short period of time, the high-resistance fault got extremely hot and even approached 20,000 degrees Fahrenheit, over 20 times the temperatures

reached in house fires. (*Id.*, pp. 171-172). He knows that extreme temperature was reached because there is evidence of a spray of metal inside the microwave, which would happen if the metal became so hot that it approached or reached a plasma state. (*Id.*, p. 171). Other parts of the wire leading up to the fault may have reached 6,000 to 8,000 degrees Fahrenheit, if even for a short time. (*Id.*, p. 172).

Dr. Durham knows from ample experience that this sort of fault can, and often will, cause appliances (including microwaves) to catch on fire and cause a house fire. He has personally investigated several dozen fires that were caused by electrical faulting inside microwaves. He has investigated a myriad of fires that were caused by similar faulting inside other types of appliances.

Dr. Durham is confident that the microwave caught fire due to the described defect and resulting fault. Furthermore, he cannot identify any alternative explanation for the fire. Dr. Durham actually concludes that this case involves a "classical case" of a high-resistance fault causing a fire and that the specific location of the fault in this particular instance is much easier to identify than in most cases. (*Id.*, p. 179).

Put simply, Dr. Durham views this case as being relatively straightforward and clear. As will be explained below, G.E. cannot preclude this critical testimony with a *Daubert* challenge.

### **ARGUMENTS AND AUTHORITIES**

#### **A. The Court's Role Is To Exclude Opinions That Constitute Junk Science, Not To Weigh The Evidence Or Usurp The Jury's Role As Fact-Finder.**

Both parties are trying to exclude testimony of their adversaries' experts. As might be expected, the *Daubert* briefs filed thus far emphasize the aspects of *Daubert* that promote the *exclusion* of expert testimony. In reality, a *Daubert* motion is not an invitation for this Court to decide the merits of this case under the guise of excluding expert testimony. The function of a *Daubert* hearing is not to replace a trial on the merits. *Pipitone v. Biomatrix, Inc.*, 288 F.3d 239, 250 (5th Cir. 2002). Instead, "vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence." *Daubert*, 509 U.S. 579, 596 (1993). This Court should admit expert testimony

“if there are ‘good grounds’ for the expert’s conclusion,” notwithstanding a judge’s personal belief that there are better grounds for some alternative conclusion. *Heller v. Shaw*, 167 F.3d 146, 152–53 (3d Cir. 1999) (internal citations omitted).

Dr. Durham’s opinions are not the least bit “shaky” and there are no better grounds for some alternative conclusion. His opinions have a reliable basis in science and his vast experience, make sense, and should be admitted at trial.

**B. Dr. Durham’s Opinions Are Reliable Because He Is Experienced In Identifying And Determining The Causes Of Electrical Failures.**

Rule 702 requires that a witness have “expert[ise resulting from] knowledge, skill, experience, training, or education.” G.E. argues that even though Dr. Durham is extremely qualified and an expert, his opinions *in this particular case* are unreliable. However, in evaluating the reliability of his opinions, this Court should recognize that Dr. Durham is as qualified as anybody in the world to testify regarding the product failure in this case.

It is proper for this Court to consider Dr. Durham’s qualifications when evaluating the particular opinion or testimony proffered in this case. *United States v. Dysart*, 705 F.2d 1247, 1252 (10th Cir. 1983). Witnesses qualifications, standing alone, do not establish reliability under Daubert. However, the Advisory Committee Note on Rule 702 also provides this guidance:

Nothing in this amendment is intended to suggest that experience alone or experience in conjunction with other knowledge, skill, training, or education may not provide sufficient foundation for expert testimony. To the contrary, the text of Rule 702 expressly contemplates that an expert may be qualified on the basis of experience.

. . . .

In some fields, experience alone is the “predominant, if not sole, basis for a great deal of reliable expert testimony.” *Id.*

A basic issue in this case is whether evidence of a high-resistance fault is present inside of what remains of the microwave. Dr. Durham has seen the results of known or suspected electrical faults on hundreds of occasions. He has created artificial electrical faults in his lab on hundreds of occasions. He is every bit as qualified to identify evidence of an electrical fault as a back surgeon would be qualified to identify a herniated disk by reading an MRI. *Accord Nelson v. Whirlpool*

*Corp.*, 2011 WL 1827451 (S.D. Ala. 2011)("The court has been given no reason to believe that a Georgia Tech professor with almost 50 years experience as a professor and electrical engineer is ignorant of the signs of electrical arcing and high-resistance contact and how to detect them.").

**C. Dr. Durham Followed The Recognized Procedures Of NFPA 921 To Evaluate The Evidence And Reliably Concludes The Microwave Experienced A High-Resistance Fault That Caused A Fire.**

G.E. suggests that Dr. Durham conducted a willy-nilly investigation and failed to follow the appropriate steps to analyze the evidence. Rule 702 requires a showing that "the testimony is the product of reliable principles and methods" and that "the expert has reliably applied the principles and methods to the facts of the case." Fed.R.Evid. 702(b)-(d). To establish that criteria is satisfied here, the Plaintiff must present evidence to (1) identify the methodology Dr. Durham used to reach his opinions; and (2) establish that the methodology is generally considered "reliable" in his field. *United States v. Crabbe*, 556 F.Supp.2d 1217, 1222 (D. Colo. 2008).

Dr. Durham has followed all of the proper procedures to the letter, and his opinions are reliable. Case law overwhelmingly recognizes that there is a ready-made set of accepted principles and procedures that, if followed, provide a reliable basis for investigating the cause of a fire – *The Guide for Fire and Explosion Investigations*, (2009 Ed.) NFPA 921, published by the National Fire Protection Association ("NFPA 921"). "The NFPA is a nonprofit organization dedicated to fire prevention, and NFPA 921 is a document intended to 'establish guidelines and recommendations for the safe and systematic investigation or analysis of fire and explosion incidents.'" *Russell v. Whirlpool Corp.*, 702 F.3d 450, 454 (8th Cir. 2012) (quoting NFPA 921 § 1.2.1). NFPA 921 provides the industry-recognized practices for conducting fire and explosion investigations. (Durham Report dated 11-19-13, Exhibit "4").

Federal courts universally agree that NFPA 921 provides a methodology for the investigation of fires that satisfies the reliability requirements of *Daubert*. As one court succinctly explains:

[B]ecause the methodology described in NFPA 921 has been peer reviewed, is generally accepted in the field of fire investigation, and incorporates the classic scientific methodology of "generating hypotheses and testing them to see if they can be falsified", the methodology is reliable within the meaning of Rule 702,

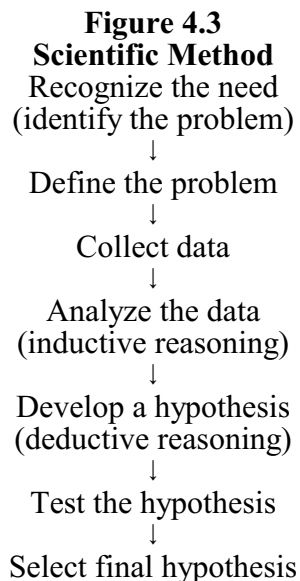
Fed.R.Evid., and *Daubert*.

*U.S. v. Acman*, 748 F.Supp.2d 531, 536 (E.D. Va. 2010)(internal citation omitted). NFPA 921 provides a clear standard for this Court to use to evaluate Dr. Durham's testimony in light of *Daubert*. See, e.g., *Fireman's Fund Ins. Co. v. Canon U.S.A., Inc.*, 394 F.3d 1054, 1057–58 (8th Cir. 2005); *Travelers Prop. & Cas. Corp. v. GE*, 150 F.Supp.2d 360, 366 (D. Conn. 2001); *Royal Ins. Co. of Am. v. Joseph Daniel Constr., Inc.*, 208 F.Supp.2d 423, 426 (S.D. N.Y. 2002) (finding the NFPA 921 standards reliable under *Daubert*); *Hoang v. Funai Corp.*, 652 F.Supp.2d 564, 567, 570 (M.D. Pa. 2009); *Tunnell v. Ford Motor Co.*, 330 F.Supp.2d 707, 725 (W.D. Va. 2004) (observing that many courts have recognized NFPA 921 as a peer reviewed and generally accepted standard in the fire investigation community).

The scientific methodology provided in NFPA 921, which Dr. Durham followed in his investigation, is as follows:

#### **4.3 Relating Investigation to the Scientific Method**

The scientific method (see Figure 4.3) is a principle of inquiry that forms a basis for legitimate scientific and engineering processes, including fire incident investigation. It is applied using the following steps.



(See NFPA 921, §4.3, included in Exhibit "5").

Dr. Durham's analysis of the evidence was in all respects consistent with NFPA 921, and he

followed the scientific method to evaluate the evidence. (Durham Depo., Exhibit "2", pp. 144-145, 231). He examined the scene twice in order to collect data and evidence. He performed a joint destructive exam of the microwave. He carefully inspected the microwave allowing him to thoroughly analyze the data, develop a hypothesis, test the hypothesis, eliminate other possible causes, and reach his ultimate conclusion.

The scientific principles underlying the procedures and concepts in Dr. Durham's methods and findings are not novel. Both the procedures and concepts applied by Dr. Durham are contained in various sections of NFPA 921, which are collectively attached as Exhibit "5".

Dr. Durham's opinions are based upon his personal observations, 45 years experience analyzing electrical faults and failures, and his own laboratory studies and experiments, the results of which were published in peer-reviewed studies. (Durham Depo., Exhibit "2", p. 179). He tested his theory by comparing his observations, as documented in photographs, against previous research he had either done himself or had been done and published by someone else. (*Id.*, p. 145). Dr. Durham had previously conducted numerous peer-reviewed studies regarding high-resistance faults, the amount of fuel that is present in insulation on the subject wire, the flamability of wire insulation, and the wear and tear process involving stress on coated electrical wire from forces and vibrations that can compromise insulation and cause high-resistance faulting. (*Id.*, pp. 181, 184, 191-192, 215, 230). Dr. Durham knows from past experience and experiments with dozens of other microwaves that there is sufficient fuel inside a microwave like the one involved in this case to support a fire. (*Id.*, p. 229-230).

Essentially, Dr. Durham followed a reasoned process of elimination to evaluate the evidence. He concludes that:

1. The burn pattern evidence suggests that the fire started in the kitchen, near where the microwave was located.
2. The microwave appears have had an intense fire inside of it that was hotter than the conditions outside of the microwave.

3. A high resistance fault occurred inside the microwave near a point where a single wire travels over a metal lip.
4. Based on his experience and prior experiments he and others conducted, that sort of fault would most likely occur due to wear and tear on wire insulation on the subject wire from a manufacturing defect that stressed the wire in the presence of vibrations.
5. The high-resistance fault was sufficient to set the microwave on fire.
6. The microwave had sufficient fuel load to cause a house fire.

Dr. Durham concludes that "this is a classic case" of a high-resistance fault. (*Id.*, p. 179).

Moreover, Dr. Durham can exclude all other possibilities. The condition of the microwave cannot be explained as being damage from an external heat. If, as G.E. now maintains, the fire started in the living room and spread to the attic, the wiring to the microwave and the microwave's own power cord would have burned before the microwave got sufficiently hot to burn a single wire. (Durham Depo., Exhibit "2", p. 209). It defies logic to assert that an external heat source, in the absence of an electrical fault, would have melted a single wire inside the microwave. Finally, copper wires that have experienced a high-resistance fault look different than wires that have been melted by external heat. Dr. Durham concludes that the wire inside of the microwave looks like it experienced a high-resistance fault. It does not appear to have melted from external heat.

Finally, the alternative explanation for the melted copper wire proffered by G.E. makes no sense. As was explained in the Plaintiff's Motion in Limine regarding the testimony of Hunter Sims, G.E. contends that a dent in the top of the microwave somehow concentrated external heat and melted a single wire. Dr. Durham considered and rejected that possibility. (*Id.*, p. 199, 201). Even ignoring the fact that external heat would not be concentrated by a dent, there is no evidence that the microwave had a dent that compressed the offending wire. (*Id.*, pp. 199-200).

**D. NFPA 921 Does Not Require Dr. Durham To Conduct A Lab Experiment For This Particular Case Or To Recreate The Conditions That Caused The Microwave To Catch Fire.**

Dr. Durham previously testified, and will be happy to explain again, why it was not necessary

for him to conduct any experiments in this case and that it would not be normal for a scientist in his position to conduct any experiments specific to the facts of this case.

The standards for his profession, including NFPA 921, do not require him to "reinvent the wheel" by conducting tests specific to the subject microwave. (*Id.*, p. 181). First, NFPA 921 84.3.4 directs an investigator to analyze data, "based on the knowledge, training, experience, and expertise of the individual doing the analysis." (See Relevant NFPA 921 Sections, Attached as Exhibit "5"). Dr. Durham saw nothing novel, unique, or otherwise new to him. As a seasoned, knowledgeable, and well-qualified investigator and electrical engineering expert, Dr. Durham acted within the purview of *Daubert* and NFPA 921 when he based his findings on his past experience, knowledge, observations, and tests.

More to the point, NFPA 921 §4.3.6 counsels that actual physical testing is not required in all cases:

Testing of the hypothesis is done by the principle of deductive reasoning, in which the investigator compares his or her hypothesis to all the known facts as well as the body of scientific knowledge associated with the phenomena relevant to the specific incident. A hypothesis can be tested either physically by conducting experiments or analytically by applying scientific principles in 'thought experiments'.

(contained in Exhibit "5"). NFPA 921 allows Dr. Durham to test his hypothesis by using deductive reasoning and considering "prior published information" about the causes of fires. (Durham Depo., Exhibit "2", pp. 182-183). NFPA provides that deductive reasoning is itself a form of scientific testing. (*Id.*, p. 195).

Federal courts consistently implement this aspect of NFPA 921's guidance when considering *Daubert* challenges. In *Windham v. Circuit City Stores, Inc.*, 420 F.Supp.2d 1206 (D. Kan. 2006), the court allowed testimony regarding the cause of a fire from an expert, Martin, who reasoned that the best inference of the cause of an explosion was the elimination of other possible causes as improbable. The court rejected an argument that the expert's opinions were unreliable "because he did not conduct any tests." The *Windham* court instead held as follows:

Testing is not the determinative factor. "Where an expert otherwise reliably utilizes scientific methods to reach a conclusion, lack of independent testing may 'go to the

weight, not the admissibility' of the testimony." *McCoy v. Whirlpool Corp.*, 379 F.Supp.2d 1187, 1197 (D. Kan. 2005) (citing *Zuchowicz v. United States*, 140 F.3d 381, 387 (2d Cir. 1998)).

Martin employed physical investigation, professional experience and technical knowledge to determine causation. Martin concluded that negligent installation caused a screw on the rear of the range to abrade the cordset thereby initiating a fire. This conclusion has its basis in the facts. First, Martin found the footprints of the range after the fire. He was then able to determine the location of the outlet relative to the rear edge of the range. From the position of the cordset, receptacle and the range, Martin concluded that the way the cordset was plugged into the receptacle placed the cordset in a position to be abraded by the screw on the range. This methodology involves a sufficiently reliable method that would aid the jury in resolving a factual dispute. *See Bitler*, 400 F.3d at 1235 (although not susceptible to testing or peer review, observation of the physical evidence at the accident scene to deduce causation does constitute generally acceptable practice as a method for fire investigators).

Id. at 1212 -1213.

*Workman v. AB Electrolux Corp.*, 2005 WL 1896246, 10 (D. Kan. 2005) involved a situation that has much in common with this case. The *Workman* court allowed into evidence the opinion of an expert that an electrical short inside a freezer caused a fire. The expert had followed the methodology set forth in NFPA 921, including physical examinations of the evidence, and concluded that there was evidence of a short inside a freezer. Much like Dr. Durham in this case, the expert concluded the short caused the fire because, among other reasons, it could not have been caused by external heat. An external fire would have terminated the electrical power to the freezer and prevented the short from happening.

The *Workman* court rejected the defendant's assertion that this opinion was a "subjective belief with no foundation." The court specifically rejected arguments that the expert's opinions were inadmissible because he failed "to test his theory of wire separation and ignition of the insulation."

That Court explained that:

*Daubert* does not require an expert to perform testing before his opinion is admissible. Rather, *Daubert* requires that the expert's methodology be established, scientifically sound, and subject to testing and peer review. That is the case with Martin's opinion, as he testified that he employed the fire origin methodology set forth in NFPA 21, which many courts have recognized as "a peer review and generally accepted standard in the fire investigation community." Moreover, as plaintiffs assert, the concepts necessary for corroborating Martin's conclusions include such widely accepted principles such as energized conductors being capable

of short circuiting events, the electrical conductivity of metal, and the capacity of short-circuit events to start fires. "[I]ndependent testing is not the sine qua non of admissibility under Daubert." Where an expert otherwise reliably utilizes scientific methods to reach a conclusion, lack of independent testing may "go to the weight, not the admissibility" of the testimony.

*Id.* at 10.

Similarly, in *Adams v. J. Meyers Builders, Inc.*, 671 F.Supp.2d 262, 273 (D. N.H., 2009), the court rejected an effort to exclude expert opinions regarding the cause of a fire due to the lack of lab testing of the expert's hypothesis about what started the fire. That court correctly recognized that NFPA 921 contemplates that testing of a fire investigator's hypothesis "may be either cognitive or experimental," so that a fire investigator's failure to employ "re-creatable testing" in reaching a conclusion does not render it unreliable. *Id.* at 273 (quoting and adding emphasis to NFPA 921 and citing cases). The *Adams* court recognized that "courts have ruled that NFPA 921 does not, in fact, require experimental testing of a fire investigator's hypothesis as to cause, and have rejected challenges to opinion testimony based on an expert's failure to do so." *Id.* (citing *Shuck v. CNH Am., LLC*, 498 F.3d 868, 875 n. 3 (8th Cir. 2007) (clarifying that NFPA 921 provides no "bright-line rule that expert opinions in fire cases always must be supported by testing to be admissible"); *Westfield Ins. Co. v. J.C. Penney Corp.*, 466 F.Supp.2d 1086, 1094 (W.D. Wis.2006) (rejecting challenge to fire investigator's opinion testimony based on his failure to perform tests)). The *Adams* court found that the expert's opinion was reliable due to sworn statements that he had ruled out every other possible cause of the fire. *Id.* at 274.

Many cases are in accord. See *Hickerson v. Pride Mobility Products Corp.*, 470 F.3d 1252 (8th Cir. 2006) (fire expert's methods deemed reliable when he examined burn and damage patterns, considered testimony, and identified a point of origin despite an absence of lab tests); *Argonaut Ins. Co. v. Samsung Heavy Industries Co. Ltd.*, 929 F.Supp.2d 159, 166 -167 (N.D. N.Y., 2013)(rejecting *Daubert* challenge to expert testimony regarding the origin and cause of a fire when the insured conducted a thorough investigation consistent with NFPA 921 even though no tests were done); *Citizens Ins. Co. of the Midwest v. LG Electronics USA, Inc.*, 2012 WL 3294962, 8 (S.D.

Ind. 2012)(allowing testimony from an expert regarding the cause of a fire even though he did not conduct any physical or destructive testing of the subject dishwasher, and due to fire damage, could not even identify what inside the refrigerator failed and caused the fire); *Travelers Indem. Co. v. Indus. Paper & Packaging Corp.*, 2006 WL 1788967, 4 -5 (E.D. Tenn. 2006)(finding that both NFPA 921 and case law recognize that deductive reasoning is credible, scientific reasoning and rejecting argument "that testing was a necessary step to forming a proper expert opinion").

G.E.'s complaint about the lack of a test or experiment is, at most, a matter for cross-examination of Dr. Durham and goes to the weight to be given to his opinions, not their admissibility. *Accord Kentucky Farm Bureau Mutual Insurance Company v. General Electric Company*, 2011 WL 665747 at \* 3 (W.D. Ky. 2011)("failure to conduct tests on the exemplar dryer is an issue of weight, not admissibility. 'Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof, are the traditional and appropriate means of attacking shaky but admissible evidence.'")(quoting *Daubert*, 509 U.S. at 596).

Moreover, all of the bases underlying Dr. Durham's opinions are supported by laboratory testing that he and others have done. Dr. Durham personally conducted experiments that addressed every step in the chain of events that he concludes led to the fire that killed Ms. Evans. He has conducted experiments regarding the failure of insulation from being damaged by a combination of physical strain and vibrations. (Durham Depo., Exhibit "2", pp. 167-168, 215). He has conducted laboratory tests regarding the processes of damaged insulation creating high-resistance faults. (*Id.*, p. 181). He has conducted experiments regarding the processes that lead to heat causing wire insulation to off-gas and ignite. (*Id.*, pp. 184, 187-188). He has conducted experiments regarding the spread of fire inside appliances, including microwaves, and he has established that the plastics inside a microwave will catch fire and sustain a fire. (*Id.*, pp. 190, 194-195). To borrow his words, those experiments "validate exactly what we are seeing" in the microwave. (*Id.*, p. 181).

The fact that Dr. Durham's tests were completed *independent* of this litigation demonstrates that his views are *more reliable* than they would be if he created a special lab experiment just for this

lawsuit. *Daubert* is intended exclude junk science that is cooked up for purposes of prosecuting a particular lawsuit. One criteria for evaluating expert testimony under the *Daubert* analysis is whether an expert's opinions grow out of research that was completed *independent* of the litigation. See *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 43 F.3d 1311, 1317 (9th Cir. 1995). Dr. Durham conducted experiments in the past to learn the basic science that underlies his opinions in this case.

Finally, although it was not necessary for Dr. Durham to conduct an experiment to re-create the fire, it is worth mentioning that G.E. wants to impose a requirement on Dr. Durham that he thinks is impossible. The conditions in the microwave that led to the fire involved a time-related failure and the original conditions in the microwave were destroyed by the fire. To recreate the fire, Dr. Durham would be required to create a set of conditions that replicate what existed in the microwave and then recreate the use of the microwave over a period of time. It would be impossible for him to replicate this sort of time-related failure. (Durham Depo., p. 197). If Dr. Durham had tried to do so, G.E. certainly would have a *correct* argument that his experiment would not be an accurate representation of the original conditions that actually led to the fire. G.E. cannot exclude Dr. Durham's opinion testimony – which has a reliable basis in his expertise, observations, prior experiments, and methods – merely because he has not conducted an impossible laboratory experiment.

**E. Dr. Durham's Opinions Are Founded Upon Sufficient Facts And Data And Are Not The Result Of "Expectation Bias."**

**1. G.E.'s Allegation That Dr. Durham Did Not Consider Enough Evidence Provides An Unlikely Basis To Completely Exclude His Testimony.**

At pages 8 to 13 of its Brief, G.E. contends Dr. Durham had an "expectation bias." The concept of "expectation bias" is not mentioned in *Daubert* and it is difficult to find any mention of that term in case law. G.E.'s contention appears to be the that Dr. Durham did not consider all the evidence, and for some unidentified reason decided to frame a G.E. microwave.

*Daubert* and F.R.E. 702 require that Dr. Durham's opinions be grounded upon sufficient facts and data. The "facts and data" that an expert may consider is broad enough to include: reliable

opinions of other experts, hypothetical facts supported by the evidence, and facts that may be otherwise admissible. Advisory Committee Note to Fed.R.Evid. 702. Expert opinions should not be excluded merely because the facts underlying an opinion are disputed. "The emphasis ... on 'sufficient facts or data' is not intended to authorize a trial court to exclude an expert's testimony on the ground that the court believes one version of the facts and not the other." *Id.*

Also, the Tenth Circuit has directed that trial courts to assess the sufficiency of the facts and data used by an expert by conducting a quantitative analysis, not by a qualitative analysis. *United States v. Lauder*, 409 F.3d 1254, 1264 n. 5 (10th Cir. 2005). This Court inquiry "examines only whether the witness obtained the amount of data that the methodology itself demands." *United States v. Crabbe*, 556 F.Supp.2d 1217, 1223 (D. Colo. 2008). This Court is not to examine the reliability of the facts, which is a question going to the weight that a jury should give to the opinions. *Lauder*, 409 F.3d at 1264.

Consistent with these principles, the very few cases that have discussed the concept of "expectation bias" as part of a *Daubert* challenge (all of which involve fire investigations) tend to recognize that complaints about the scope of evidence reviewed by an expert go to the *weight* of the resulting opinions, not their *admissibility*. For example, in *Johnson v. Samsung Electronics America, Inc.*, 277 F.R.D. 161 (E.D. La. 2011), the defendant hoped to exclude the opinions of an expert regarding a cause of a fire by arguing that the expert demonstrated an "expectation bias." In that case, the expert "1) visited the burned premises twice, 2) observed and 'evaluated physical fire effects and fire patterns within the hostile fire incident scene,' 3) 'conducted a heat and flame vector analysis,' 4) 'processed the hostile fire incident,' 'documented the hostile fire incident scene,' and 5) 'collected and preserved relevant physical evidence from the hostile fire incident scene.'" *Id.* at 166. The expert also participated in inspections and examinations of physical evidence and participated in witness interviews. *Id.* at 165 -166. However, the defendant argued the expert demonstrated "preconceived notions, expectation bias, and confirmation bias" because he "focused on the window air conditioning unit almost immediately upon his initial inspection of the fire scene...." *Id.* The

*Johnson* court concluded that this contention went to the "the weight to be accorded to [the expert's] testimony, not the admissibility of the testimony itself." *Id.* at 167.

Similarly, in *Occidental Fire & Cas. of North Carolina v. Intermatic Inc.*, 2013 WL 4458769, 2 (D. Nev., 2013), the defendant argued the plaintiff's expert witness testimony was "unreliable because he consulted only one witness in determining the fire's area of origin." The defendant, like G.E., asserted that this limited investigation reflected an "expectation bias" and was inconsistent with the methodology of NFPA 921. *Id.* Once again, the court rejected this argument, reasoning instead that:

Even a cursory reading of the [NFPA 921] guidelines makes clear that this argument against Peak's method of fire investigation holds no water. Section 17.2.1.2 of the NFPA states clearly that "a single item, such as an irrefutable article of physical evidence or a credible eyewitness to the ignition ... may be the basis for a determination of origin." This rule makes clear that there are circumstances in which a sole witness statement would be enough to validate a fire investigation under the NFPA 921 method. Because defendant's argument is incorrectly rooted in the premise that reliance on a single witness statement necessarily violates the NFPA 921 method, this argument for excluding Peak's testimony is clearly no more than smoke and mirrors.

*Id.*

**2. Dr. Durham Conducted A Thorough Investigation That Led Him To The Reasonable Conclusion That The Fire Started Inside The Microwave.**

Ultimately, G.E. encourages this Court to find that Dr. Durham had an "expectation bias" for the simple reason that it is very clear that the fire started in the microwave. The Court should not confuse the compelling evidence of G.E.'s liability with tunnel vision on Dr. Durham's part. Dr. Durham considered all of the evidence that was available to reach his opinions. Dr. Durham and Mr. Overton went to Ms. Evans' house repeatedly, examined the scene and determined that the area of origin of the fire was the kitchen. As a factual matter, Dr. Durham inspected the entire house. He blames the microwave solely because: (1) it clearly experience a high resistance fault that started a fire inside it; and (2) all other cause for the fire can be eliminated.

G.E. also conveniently ignores the testimony of Mr. Overton, who will also testify at trial. Mr. Overton has explained that, as part of his examination of the fire scene he eliminated all

available sources of heat to start the fire in the electrical branch circuitry, electrical components, electrical appliances, and everything that he could find in the den and the kitchen area. (Randel Overton Depo., Exhibit "6", pp. 110-111). In short, Mr. Overton – the person with primary responsibility for finding the area of origin – examined the entire home and determined the fire originated in the kitchen.

Also, G.E.'s argument is contradicted by the testimony of Joe "Jody" Cooper, G.E.'s own cause and origin expert. Mr. Cooper agrees that Dr. Durham and Mr. Overton "completely processed" the fire scene. (Joe B. "Jody" Cooper Depo., Exhibit "7", pp. 119-120). Mr. Cooper does not believe that Dr. Durham or Mr. Overton had "any particular personal bias in wanting the origin of the fire to be in the kitchen" when they investigated the fire. (*Id.*, p. 122). It is remarkable that G.E. would now make a contrary assertion.

**3. G.E.'s Specific Criticisms Of Dr. Durham's Investigation Demonstrate That G.E. Misunderstands The Evidence And Dr. Durham's Opinions.**

**a. Dr. Durham Properly Excluded The Vent Hood As A Cause Of The Fire.**

G.E. asserts that Dr. Durham's opinions are suspect because he "overlooked the electrical wiring in the vent hood" and "failed to discover evidence of faulting in the vent hood that was a few feet away from the MWO." (G.E.'s Brief, pp. 9-10).

As an initial matter, G.E. is defending this case by asserting that the fire started in the den/living room. The vent hood was in Ms. Evans' kitchen, not her living room. G.E. obviously does not really contend that the vent hood started the fire. It cannot simultaneously assert that Dr. Durham's opinions are unreliable because he supposedly failed to consider a potential cause of the fire that G.E. itself agrees was not the cause of the fire.

Of more importance, G.E.'s assertion that Dr. Durham failed to examine the vent hood is just plain wrong. Dr. Durham testified in his deposition that he recognized that the vent hood was located in the kitchen was about three feet from the microwave. (Durham Depo., Exhibit "2", p. 46). He did examine the vent hood. (*Id.*, p. 54). He saw evidence that the vent hood had electricity to it when the fire reached it, but the evidence of faulting he saw on the vent hood was not the sort of

faulting that would cause a fire. (*Id.*, pp. 83-84). Instead, the faulting in the vent hood's wiring was consistent with damage from external heat reaching wires that were energized.<sup>1</sup> (*Id.*, pp. 111-112). Basically, Dr. Durham concludes that the vent hood got burned by the fire while it still had power, but the vent hood did not start the fire.

G.E. also ignores the testimony of its own electrical engineer expert, Hunter Sims. Mr. Sims *agrees with Dr. Durham* that the condition of the wires in the vent hood "lend itself more towards a conclusion of melting than it does arcing." (Sims Depo., Exhibit "8", p. 93). He did not see any evidence inside the Vent-A-Hood of where electricity made contact with the steel, which would be consistent with a fault involving arcing that might cause a fire. (*Id.*, p. 104). Mr. Sims also cannot identify any actual fuel source that would have allowed a fire to start inside the vent hood. (*Id.*, pp. 93-94). Mr. Sims seems to actually agree with Dr. Durham on this point – the vent hood was damaged from external heat while energized but did not cause the fire.

**b. Dr. Durham Did Not Ignore "Other Likely Sources In The Den," And He Reliably Excluded Those Ignition Sources Based On Evidence That The Fire Started In The Kitchen Inside The Microwave.**

Next, G.E. complains that Dr. Durham was biased because he did not exclude ignition sources in the den/living room. However, as has been explained, Dr. Durham looked at the whole house. Dr. Durham and Mr. Overton concluded that the burn patterns indicated the fire started in the kitchen. According to the guidance of NFPA 921, after determining the fire started in the kitchen, they could properly exclude all ignition sources that are not in the kitchen.

Hunter Sims agrees. Mr. Sims concedes that after a qualified fire investigator determines the area of origin of a fire, he can properly exclude causes of the fire that are outside of that area. (*Id.*, pp. 81-82, 84). He also agrees that if Dr. Durham's analysis is correct – meaning an electrical fault in the microwave caused the fire – that evidence, standing alone, eliminates appliances in the living

---

<sup>1</sup>By way of explanation, a wire with a blob of melted copper on its end was damaged by encroaching heat, while a wire that experienced fire-causing arcing will typically exhibit pitting, discoloration, and a change of shape. (Durham Depo., p. 125).

room as potential ignition sources. (*Id.*, p. 122).

Mr. Overton concludes the fire started in the kitchen, and G.E. has not attempted to exclude that opinion under *Daubert*. Dr. Durham and Mr. Overton are entitled to rely on each others' expert opinions. Advisory Committee Note to Fed.R.Evid. 702 (expert may consider "reliable opinions of other experts"); *Argonaut Ins. Co. v. Samsung Heavy Industries Co. Ltd.*, 929 F.Supp.2d 159, 168 (N.D. N.Y. 2013)(agreeing that "[e]xperts in fire cases often rely upon the observations of other experts in reaching their conclusions)(quoting *Peerless Ins. Co. v. Marley Engineered Products, LLC*, 2008 WL 7440158 at \*6 (E.D. N.Y.)) This Court should not exclude Dr. Durham's opinions because items in the living room have not been excluded as causes of the fire. Moreover, since Dr. Durham concludes the microwave must be the source of the fire, his own analysis excludes any ignition source in the living room.

Finally, *nobody* has identified *any* ignition source in the living room. The only evidence of a potential ignition source actually identified by anyone in this case is located *inside the microwave*. G.E. accuses Dr. Durham of ignoring alleged evidence that it cannot find.

**c. Dr. Durham Properly Excluded House Wiring As The Cause Of The Fire.**

G.E.'s next theory is that Dr. Durham cannot tell the jury about the "classical case of a high-resistance fault" inside the microwave because he did not rule out the home's wiring as an ignition source. G.E. argues that investigators were not able to find every piece of wiring in the house after the fire, so any expert opinion as to the actual cause of the fire could be speculation. G.E. then speculates that maybe, if it somebody discovered every molecule of wiring from the burned-down house, there might be signs of a fault somewhere outside the microwave.

There are several problems with G.E.'s approach. First, Dr. Durham did inspect the many wires that could be located, and he did not find any evidence of any faulting. (Durham Depo., Exhibit "2", pp. 152-153). So did Mr. Overton. (Overton Depo., Exhibit "6", pp. 110-111). Second, Dr. Durham found evidence of a high-resistance fault inside the microwave. If the fire started outside the microwave, then that evidence would not exist. Notwithstanding Hunter Sims' Magic

Dent Theory, the laws of physics and thermodynamics would not allow a dent to concentrate heat on a single wire in the microwave, melt it, and then allow the dent to disappear.

Finally, G.E.'s approach would essentially mean that no matter how much evidence an expert finds of the actual cause of a fire, his or her opinions would be inadmissible unless every single wire could be preserved and reviewed. Under G.E.'s approach, fire investigation experts would need to put burned houses back together to determine the cause of a fire. It will never be possible, after a serious house fire, to find and evaluate every single piece of wire that was present before the fire happened. However, it is understandable that one of the world's largest marketers of electrical appliances that are manufactured in distant Korean factories would support such an approach.

**F. Dr. Durham's Opinions Are Not Based On "Rank Speculation" Or "Assumptions."**

G.E. essentially asserts that, because the microwave was partially destroyed in the fire, Dr. Durham cannot be allowed to testify at all because it is now impossible to discern exactly how the wire was installed incorrectly.

G.E.'s approach ignores substantive Oklahoma law regarding products liability. True, the Plaintiff must prove that the subject microwave was defective and caused the fire that killed Ms. Evans' death. *Kirkland v. General Motors Corp.*, 1974 OK 52, 521 P.2d 1353, 1363. However, Oklahoma law does not require the Plaintiff to prove the specific defect that caused the fire. *Dutsch v. Sea Ray Boats, Inc.*, 1992 OK 155, 845 P.2d 187, 189-90; OUJI 12.1. Moreover, circumstantial evidence may be used to support the probability of a defect, and "it is not necessary that such proof rise to such degree of certainty as to support only one reasonable conclusion and exclude all others." *Kirkland*, 521 P.2d at 1364 (quoting *Chickasha Cotton Oil Co. v. Hancock*, 1957 OK 12, 306 P.2d 330).

Circumstantial evidence in the form of an expert's opinion is sufficient to prove a claim for products liability. *Orth v. Emerson Elec. Co., White-Rodgers Div.*, 980 F.2d 632, 636 (10th Cir. 1992). Sometimes it is impossible to pinpoint a precise cause of a fire due to damage to the product, so an expert may have to rely on observations, burn patterns, or circumstantial evidence to reach his

or her conclusion. For example, *Tigert v. Admiral Corp.*, 1979 OK CIV APP 41, 612 P.2d 1381, involved a television set that burned the plaintiff's home. The television set was purchased new, and was unmodified at the time of the fire. Very little was left of the television after the fire, so the plaintiff's expert had to rely on his skill and expertise in fire investigations, including burn patterns, to determine that the television set caused the fire, after ruling out other possible causes of the fire. In *Tigert*, the trial court granted summary judgment in favor of the defendant manufacturer because plaintiff's expert could not identify the specific component that failed. The Oklahoma Court of Civil Appeals overturned the trial court's ruling, noting that at times an expert will be unable to determine a precise cause of the loss, and that circumstantial evidence and probable theories will have to be relied upon. As the court in *Tigert* highlighted in the out-of-state cases that it cited, defect-free products normally do not cause fire. Due to the damage caused by fires, identifying the exact component failure can be difficult or impossible.

Dr. Durham acknowledges that, because the microwave and the wire inside it was largely destroyed by the fire, it is impossible to tell exactly why the fault happened. (Durham Depo., Exhibit "2", p. 158). Also, looking at an exemplar will not clarify the situation because most microwaves do not fail and do not have the same manufacturing defect. (*Id.*, p. 158). However, based upon his own experience and lab tests, Dr. Durham concludes that the defect in the microwave involved stress being placed on the wire where it was draped over a metal shelf. He reaches this conclusion, not by speculating, but by engaging in a reasoned analysis:

1. There is compelling evidence that a high-resistance fault happened in the middle of a wire, right where the wire passed over the metal shelf;
2. He knows from prior experiments and experience that this sort of high-resistance fault occurs in the middle of a wire (as opposed to a bad connection) because of damage to insulation;
3. He knows from prior experiments and experience that tension on a wire combined with vibration will damage insulation on a wire;

4. He knows from prior experiments that normal operation of an appliance will cause vibrations that would damage insulation on a wire that was stretched too tightly over a metal edge.

Taking all of these facts together, it is not speculation for Dr. Durham to conclude that improper installation of the wire caused it to be stressed and damaged.

Even Hunter Sims agrees that Dr. Durham's explanation is plausible. Mr. Sims agrees with the principle that if the wire had been placed under tension, vibrations could have damaged the insulation over time. (Sims Depo., Exhibit "8", pp. 67-68).

The only other possibility is that the wire itself had a manufacturing defect at the time of its insulation. However, Dr. Durham has done extensive studies regarding insulation on wiring. He thinks that the presence of a pre-existing defect in the insulation is far less likely than damage to the insulation from a defective installation of the wire. Moreover, if the insulation were defective, that would itself be a basis for imposing liability on G.E.

**G. Dr. Durham's Alleged "Incorrect Assumptions" And Inadequacies Have No Relevance To The Reliability Of His Opinions.**

At pages 14-15, G.E. tries to attack Dr. Durham's credibility by pointing out that there are details about the microwave and its wiring that Dr. Durham did not investigate. Generally, that list of criticisms involve facts that are nothing more than disputes between experts or disagreements between the experts about what should have been done to properly analyze the relevant evidence. As has been explained, *Daubert* does not allow trial courts to exclude testimony merely because of disagreements between experts either about the facts or about methods to evaluate those facts.

G.E.'s complaints about Dr. Durham's investigation also lack a valid basis. For example, G.E. contends Dr. Durham's opinions are inadmissible because he did not examine an exemplar microwave. However, Dr. Durham did not need to look at an exemplar microwave to determine that he was looking at a "classical case" of a high-resistance fault. He did not think that either a circuit diagram or an exemplar was important for his analysis of the defect in this microwave. (Durham Depo., Exhibit "2", p. 164). There is nothing that could be seen in an exemplar microwave that

would eliminate the evidence of a fault that was found inside the offending G.E. microwave. Moreover, Dr. Durham is not suggesting that the microwave had a design defect, so an exemplar has little value to his conclusion. An exemplar would not contain the same wiring defect that caused the high-resistance fault in this case.

Hunter Sims agrees that the use of exemplars have limits. He agrees that in some instances it can be obvious that a particular item failed inside an appliance that he examines. (Sims Depo., Exhibit "7", pp. 26-27). He agrees that in those instances there is no reason to examine an exemplar. (*Id.*, pp. 26-27).

G.E. also asserts that Dr. Durham incorrectly indicated in his report that the subject wire was rated at 300 volts, but it actually was rated at 600 volts. However, Dr. Durham's concludes that it makes no difference at all whether the wire was rated at 600 volts or 300 volts – it experienced a high-resistance fault, whatever its voltage rating was. (Durham Depo., Exhibit "2", pp. 175-176). Dr. Durham does not, for example, contend that the microwave was defective because the insulation itself was not suitable for the voltage rating of the wire. (*Id.*, p. 177).

Hunter Sims cannot explain why the rating of the wire matters. He testified that he "is not sure" how this particular discrepancy affects his analysis to any great extent. (Sims Depo., Exhibit "8", p. 137). Given that Mr. Sims cannot say why the distinction between a 600-volt-rated wire and a 300-volt-rated wire matters, perhaps he and G.E. are blowing smoke.

G.E. also criticizes Dr. Durham on the basis that he allegedly did not know whether the location on the wire where the fault occurred was "upstream" or "downstream" of the microwave's TCO. Essentially, the only difference this would make is that the "downstream" portion of the wire would have carried extra current and would have gotten hot when the fault happened. Dr. Durham does not really know whether the location on the wire was "downstream or upstream" of the TCO. (Durham Depo., Exhibit "2", p. 165). He also does not care, because the upstream/downstream distinction makes no difference. (*Id.*, p. 224). The short would have happened in the exact same way without regard to whether the wire was upstream or downstream of the TCO. The fire started right

where the fault occurred, not someplace either upstream or downstream on the wire. To the extent Mr. Sims disagrees, it is because Mr. Sims does not understand Dr. Durham's opinions and fails to comprehend how the fire started.

Finally, G.E. asserts that the fire could not have happened because a high-resistance fault would have immediately blown a fuse inside the microwave and cut off the flow of electricity. (Sims Depo., Exhibit "8", pp. 138-139). Dr. Durham is prepared to testify that, in fact, high-resistance faults do not necessarily blow fuses in time to prevent ignition of insulation on the affected wire. (Durham Depo., Exhibit "2", pp. 165-166). He can (and will) provide a technical information about how fuses work and why they do not necessarily stop fires from high-resistance faults. Dr. Durham can explain that, if fuses prevented fires from high-resistance faults, there would be far fewer electrical fires than actually happen. Finally, he will testify that, based upon his knowledge and observations, the physical evidence demonstrates that fuse or no fuse, the fault occurred.

G.E. has, at most, pointed to disagreements between experts about the facts and their opinions. G.E. apparently expects this Court to *completely exclude* the testimony of a Ph.D. researcher with 45 years of relevant experience solely because G.E. has found an electrical engineer with a Bachelors degree who disagrees. Moreover, G.E.'s hand-picked expert explains away the physical evidence of the high-resistance fault by blaming a dent in the top of the microwave that impinged on the faulted wire, even though there is no evidence that such a dent existed.

### **CONCLUSION**

G.E. either has purposefully mischaracterized the scope of Dr. Durham's investigation and his analysis, or it does not understand the relevant facts. Plainly, there are no grounds to exclude Dr. Durham's testimony under *Daubert*. He is extremely well-qualified as an expert, and he conducted a very thorough investigation. His opinions have a reliable basis in that they are based on his extensive experience and prior testing and a proper application of the procedures required by NFPA 921. The Court should deny G.E.'s *Daubert* challenge regarding Dr. Durham's testimony.

Respectfully submitted,

TAYLOR, RYAN, MINTON, VAN DALSEM,  
& WILLIAMS, P.C.

By s/Robert Scott Williams

ROBERT TAYLOR - OBA #8879

NEIL D. VAN DALSEM - OBA #16326

ROBERT SCOTT WILLIAMS - OBA #19974

Suite 850 Boulder Towers

1437 S. Boulder Ave.

Tulsa, OK 74119-3640

(918) 749-5566

**CERTIFICATE OF MAILING**

I, ROBERT SCOTT WILLIAMS, hereby certify that on the \_\_\_\_\_ day of April, 2014, I electronically transmitted the foregoing document to the Clerk of the Court using the ECF System for filing and transmittal of a Notice of Electronic Filing to the following ECF registrants:

John H. Tucker  
Randall E. Long  
Kerry R. Lewis  
100 West 5<sup>th</sup> Street  
Suite 400  
Tulsa, OK 74103  
Attorneys for General Electric  
and Daewoo Electronics

s/Robert Scott Williams

ROBERT SCOTT WILLIAMS